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WHAT IS CLAIMED IS:

1. An electrical apparatus having a liquid path including a space for allowing a cooling medium for cooling a heating member to flow therein, said liquid path comprising:

a cooling part formed at the place corresponding to said heating member;

an introducing part for being continuous with said cooling part, and for introducing said cooling medium supplied from an outside into said cooling part; and

a draining part for being continuous with said cooling part, and for draining said cooling medium introduced into said cooling part to the outside,

wherein said liquid path is configured so that the cross-sectional area of the liquid path extending from said introducing part up to said draining part through said cooling part is substantially constant.

2. An electrical apparatus according to Claim 1, wherein said liquid path is configured to allow said cooling medium to linearly flow.

3. An electrical apparatus according to Claim 1, wherein the liquid path width and liquid path depth in said introducing part is gradually changed so that the liquid path width and liquid path depth at the leading edge of said introducing part, respectively, becomes the liquid path width and liquid path depth in said cooling part, and wherein the liquid path width and liquid path depth in said draining part is gradually changed so that the liquid path

width and liquid path depth at the end of said cooling part adjacent to said draining part, respectively, becomes the liquid path width and liquid path depth at the trailing edge of said draining part.

4. An electrical apparatus according to Claim 3, wherein the liquid path width at the leading edge of said introducing part is equal to that at the trailing edge of said draining part and smaller than that in said cooling part, and wherein the liquid path depth at the leading edge of said introducing part is equal to that at the trailing edge of said draining part and larger than that in said cooling part.

5. An electrical apparatus having a liquid path including a space for allowing a cooling medium for cooling a heating member to flow therein, and a feed pipe and a drain pipe for allowing said cooling medium to enter into and drain out of said space, respectively, said liquid path comprising:

a cooling part disposed immediately underneath said heating member;

a first partial structure part disposed between said feed pipe and said cooling part, and having a liquid path cross-sectional profile that is gradually reduced in the short side direction of said cooling part and that is gradually enlarged in the long side direction thereof; and

a second partial structure part disposed between said cooling part and said drain pipe, and having a liquid path cross-sectional profile that is gradually enlarged from the short side of said cooling part and that is gradually

reduced from the long side thereof.

6. An electrical apparatus according to Claim 5, wherein each of said first and second partial structure parts is constant in the rate of change of the length in the short side direction, and wherein each of said first and second partial structure parts is constant in the rate of change of the length in the long side direction.

7. An electrical apparatus according to Claim 5, wherein said first and second partial structure parts, and said feed and drain pipes are each parallel with said cooling part, and wherein the angle formed between the peripheral wall of said cooling part and that of each of said partial structure parts is not more than 45 degrees.

8. An electrical apparatus according to Claim 7, wherein the angle  $\theta_1$  formed between the peripheral wall of said first partial structure part and that of said cooling part is smaller than the angle  $\theta_3$  formed between the peripheral wall of said second partial structure part and that of said cooling part.

9. An electrical apparatus according to Claim 5, wherein each of said feed pipe and drain pipe is perpendicular to said cooling part.

10. An electrical apparatus according to Claim 9, wherein said feed pipe and drain pipe are located on the same side with respect to said inverter apparatus, wherein the angle  $\theta_5$  formed between the peripheral wall of said feed pipe and that of said first partial structure part is not more than 45 degrees, and wherein the angle  $\theta_6$  formed between the

peripheral wall of said first partial structure part and that of said cooling part is less than 90 degrees.

11. An electrical apparatus according to Claim 5, wherein a plurality of inverter apparatuses is arranged on the same plane.

12. A cooling system for an electrical apparatus, said cooling system comprising:

- a cooling device for cooling a cooling medium; and
- a cooling medium supply device for supplying a cooling medium cooled by said cooling device to an electrical apparatus according to Claim 1,

wherein said cooling system is configured to include said liquid path provided for said electrical apparatus.

13. A cooling system for an electrical apparatus, said cooling system comprising:

- a cooling device for cooling a cooling medium; and
- a cooling medium supply device for supplying a cooling medium cooled by said cooling device to an electrical apparatus according to Claim 5,

wherein said cooling system is configured to include said liquid path provided for said electrical apparatus.

14. An electric vehicle, comprising:

- a power source mounted on said electric vehicle;
- an electrical apparatus for converting electric power supplied from said power source into predetermined electric power;

- an electric motor for being rotationally driven by electric power supplied from said electrical apparatus, and

for driving said electric vehicle;

a cooling device for being mounted on said electric vehicle, and for cooling a cooling medium; and

a cooling medium supply device for supplying said cooling medium cooled by said cooling device to at least said electric motor and electrical apparatus,

wherein said electrical apparatus is the electrical apparatus according to Claim 1.

15. An electric vehicle according to Claim 14, wherein said power source is a battery, and wherein said electrical apparatus is an inverter apparatus that converts direct-current power supplied from said battery, into alternating-current power to thereby supply it to said electric motor.

16. An electric vehicle, comprising:

a power source mounted on said electric vehicle;

an electrical apparatus for converting electric power supplied from said power source into predetermined electric power;

an electric motor for being rotationally driven by electric power supplied from said electrical apparatus, and for driving said electric vehicle;

a cooling device for being mounted on said electric vehicle, and for cooling a cooling medium; and

a cooling medium supply device for supplying said cooling medium cooled by said cooling device to at least said electric motor and electrical apparatus,

wherein said electrical apparatus is the electrical apparatus according to Claim 5.

17. An electric vehicle according to Claim 16, wherein said power source is a battery, and wherein said electrical apparatus is an inverter apparatus that converts direct-current power supplied from said battery, into alternating-current power to thereby supply it to said electric motor.